

WHAT IS CLAIMED IS:

1. A method of manufacturing a semiconductor device, comprising the steps of:

dividing a laser beam from a pulse oscillation type solid laser as a light
5 source into a plurality of laser beams;

changing an optical path length of at least one laser beam of the plurality
of laser beams; and

synthesizing the plurality of laser beams to irradiate a semiconductor
film.

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2. A method according to claim 1, wherein the laser beam is divided into an s-
component and a p-component to form the plurality of laser beams.

3. A method according to claim 1, wherein an output time of the laser beam is
15 1 to 50 ns.

4. A method according to claim 1, wherein the pulse oscillation type solid laser
is one selected from the group consisting of a YAG laser, a YVO_4 laser, a YLF laser,
a YAlO_3 laser, a glass laser, a ruby laser, an alexandrite laser, and a Ti:sapphire
20 laser.

5. A method according to claim 1, wherein the semiconductor film is a film
containing silicon.

25 6. A method according to claim 1, wherein said semiconductor device comprises

at least one electric equipment selected from the group consisting of a video camera, a digital camera, a digital camera, a projector, a head-mounted display, a goggle type display, a car navigation system, a car stereo, a personal computer, a mobile information terminal, a mobile computer, a mobile telephone, and an electronic
5 book.

7. A method of manufacturing a semiconductor device, comprising the steps of:

changing an optical path length of at least one laser beam of a plurality of
10 laser beams from a plurality of pulse oscillation type solid lasers as light sources:
and

synthesizing the plurality of laser beams to irradiate a semiconductor
film.

15 8. A method according to claim 7, wherein an output time of the laser beam is
1 to 50 ns.

9. A method according to claim 7, wherein the pulse oscillation type solid laser
is one selected from the group consisting of a YAG laser, a YVO₄ laser, a YLF laser,
20 a YAlO₃ laser, a glass laser, a ruby laser, an alexandrite laser, and a Ti:sapphire
laser.

10. A method according to claim 7, wherein the semiconductor film is a film
containing silicon.

11. A method according to claim 7, wherein said semiconductor device comprises at least one electric equipment selected from the group consisting of a video camera, a digital camera, a digital camera, a projector, a head-mounted display, a goggle type display, a car navigation system, a car stereo, a personal computer, a mobile information terminal, a mobile computer, a mobile telephone, and an electronic book.

12. A method of manufacturing a semiconductor device, comprising the steps of:

10 oscillating a first laser beam from at least one pulse oscillation type solid laser of a plurality of pulse oscillation type solid lasers;

oscillating a second laser beam from another pulse oscillation type solid laser; and

synthesizing the first laser beam and the second laser beam to irradiate a semiconductor film.

13. A method according to claim 12, wherein an output time of the first laser beam or the second laser beam is 1 to 50 ns.

20 14. A method according to claim 12, wherein the pulse oscillation type solid laser is one selected from the group consisting of a YAG laser, a YVO₄ laser, a YLF laser, a YAlO₃ laser, a glass laser, a ruby laser, an alexandrite laser, and a Ti:sapphire laser.

25 15. A method according to claim 12, wherein the semiconductor film is a film

containing silicon.

16. A method according to claim 12, wherein said semiconductor device comprises at least one electric equipment selected from the group consisting of a video camera, a digital camera, a digital camera, a projector, a head-mounted display, a goggle type display, a car navigation system, a car stereo, a personal computer, a mobile information terminal, a mobile computer, a mobile telephone, and an electronic book.

10 17. A method of manufacturing a semiconductor device, comprising the steps of:

oscillating a first laser beam from at least one pulse oscillation type solid laser of a plurality of pulse oscillation type solid lasers;

oscillating a second laser beam from another pulse oscillation type solid
15 laser;

changing an optical path length of at least one of the first laser beam and the second laser beam; and

synthesizing the first laser beam and the second laser beam to irradiate a semiconductor film.

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18. A method according to claim 17, wherein an output time of the first laser beam or the second laser beam is 1 to 50 ns.

19. A method according to claim 17, wherein the pulse oscillation type solid
25 laser is one selected from the group consisting of a YAG laser, a YVO₄ laser, a YLF

laser, a YAlO_3 laser, a glass laser, a ruby laser, an alexandrite laser, and a Ti:sapphire laser.

20. A method according to claim 17, wherein the semiconductor film is a film
5 containing silicon.

21. A method according to claim 17, wherein said semiconductor device
comprises at least one electric equipment selected from the group consisting of a video
camera, a digital camera, a digital camera, a projector, a head-mounted display, a
10 goggle type display, a car navigation system, a car stereo, a personal computer, a
mobile information terminal, a mobile computer, a mobile telephone, and an electronic
book.